Newton's Laws

Sir Isaac Newton lived during the 1600s. Like any good scientist, he made observations about the world around him. Based on his observations he developed his **now famous** three laws of motion. Although he lived hundreds of years ago, his work continues to be viewed as one of the most important contributions to science. His laws of motion explain rest, constant motion, accelerated motion, and describe how balanced and unbalanced forces act to cause these states of motion.

LAW #1: INERTIA

Have you ever been riding in a car when the driver suddenly slammed on the brakes? How did your body move as the car came to a stop? You probably felt your body move forward. When you felt this happening you experienced Newton's first law of motion. Newton's first law of motion says that **an object in motion will stay in motion and an object at rest will stay at rest unless acted on by an unbalanced force**. In the car your body was in motion, traveling at the same speed as the car. When the car stopped, your body stayed in motion. If you were not wearing a seatbelt and you were traveling very fast, your body could continue to move forward through the windshield!

Newton called his first law **inertia**.

Try the following activity to demonstrate this law!

1. Place a 3x5 card on top of a glass.
2. Put a coin on the center of the card.
3. Flick the card horizontally with your finger.
4. What happens to the coin?
5. Explain what happened to the coin using Newton's first law.

This activity is similar to the magician's trick of pulling a tablecloth out from under dishes on a table. Because the dishes have inertia, they will stay at rest unless acted on by some unbalanced force. If the tablecloth is really smooth and is pulled out fast enough, there is not enough friction created to cause the dishes to move. **DO NOT TRY THIS AT HOME WITHOUT PARENT PERMISSION!**

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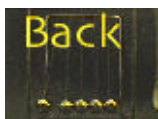
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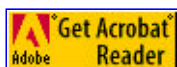
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